



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,891	03/31/2004	Tadashi Saito	W1878.0193	4980
32172 7590 11/28/2007 DICKSTEIN SHAPIRO LLP 1177 AVENUE OF THE AMERICAS (6TH AVENUE) NEW YORK, NY 10036-2714			EXAMINER AGGARWAL, YOGESH K	
			ART UNIT 2622	PAPER NUMBER
			MAIL DATE 11/28/2007	DELIVERY MODE. PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/812,891	Applicant(s) SAITO, TADASHI	
	Examiner Yogesh K. Aggarwal	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments filed 09/06/2007 have been fully considered but they are not persuasive.

Examiner's response:

2. Applicant argues with regards to claim 1 that Su relates to correcting the distortion in a projected image that is caused by a shifted or misaligned device which is different than correcting a distortion of the image that has been captured by said imaging means. The Examiner respectfully disagrees.

In applicant's specification as explained in Paragraph 72-75,

If the optical axis L of camera 4 is inclined with respect to the picture or document that is placed on materials stage 2 due to the inclination of arm 3 at this time, the image that is obtained from this picture signal will include optical distortion that is produced by the inclination of optical axis L of the optics. This digitized information is taken in by CPU 16 as information of the amount of inclination of arm 3, and CPU 16 searches the data table of ROM 17 based on this information, reads out parameters for optical distortion correction, and supplies the parameters to distortion correction processor 15. Distortion correction processor 15 then uses the parameters for optical distortion correction to execute a process for correcting the optical distortion, i.e., the trapezoidal distortion that is produced by the inclination of optical axis L of the optics of camera 4.

Therefore due to the optic axis of the camera, a trapezoidal distortion occurs. This is input to the CPU and based on this information, CPU searches a table for reading out parameters for optical distortion correction and applies these to the distorted image.

Similar to this problem, when the projector 10 in SU is misaligned a distortion occurs (col. 3 lines 50-52, Therefore this distortion is due to a misalignment to projector and a forced distortion). The detector 40 installed in the projector can automatically detect the horizontal and vertical inclination angles θ_1 and θ_2 and the disposition distance D_0 in

real time. The horizontal and vertical inclination angles $\theta_{sub.1}$ and $\theta_{sub.2}$ and the disposition distance $D_{sub.0}$ are then compared to the standard reference values. Whether the projector 10 is shifted is known, and the deviation from the standard references is obtained. In step 34, a keystone correction value (or correction value) corresponding to the deviated value is obtained according the deviation by the control circuit 80 and in step 36 the control circuit corrects the trapezium distortion according to these correction values (col. 3 line 53-col. 4 line 67). Therefore the problem solved by both SU and present invention is the same and a distortion is corrected for an image that has been captured by an imaging means like a projector. Therefore as required by the independent claim, a distorted image is picked up by the projector and corrected and displayed free of distortions.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-20 are rejected under 35 U.S.C. 103(a), as being unpatentable over Applicant's admitted prior art in view of Su (US Patent # 6,686,973).

[Claim 1]

Applicant's admitted prior art teaches a material presentation device (figure 1, device 100), comprising:

a materials stage (101) for placing a material that is an object of image capture

(Paragraph 6);

an imaging means (camera 103) composed of an imaging element (CCD) and optics as a single unit for picking up an image of said material that is placed on said materials stage and supplying a picture signal as output (Paragraphs 6 and 10);

a signal output means for supplying said picture signal to an outside (Paragraph 10 teaches outputting data to a display that is electrically connected to the device 100);

a securing member (arm 102) for holding said imaging means (camera 103) in a freely movable state for picking up the image of said material at an angle from a position other than directly above said materials stage (Paragraph 7).

Applicant's admitted prior art fails to teach a means for using a displacement amount detector that detects an amount of displacement of said securing member, and based on detection results of said displacement amount detector, correcting a distortion of the image that has been captured by said imaging means.

However Su teaches a materials presentation device (figures 1a, 1b and 3) that uses a detector (40, figure 3, displacement amount detector) that detects an amount of displacement (angle) of the projector 10 with the disposition surface 20 (securing member) and based on detection results of said displacement amount detector, correcting a distortion of the image that has been captured by said imaging means (col. 3 line 1-col. 5 line 8, figures 1-3).

Therefore taking the combined teachings of Applicant's admitted prior art and Su, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have a displacement amount detector that detects an amount of displacement of said securing member, and based on detection results of said displacement amount detector, correcting a distortion of the image that has been captured by said imaging means as taught in Su to be

implemented into the applicant's admitted prior art so that the user does not have to adjust the position of the projector manually and instead, the disposition parameters can be automatically detected by the detector thereby the deviation between the real time disposition parameters and the standard reference values with which the projector is well aligned, the projected image can be corrected thereby making the whole process easier, automatic and implemented in real-time (col. 5 lines 61-col. 6 line 6).

[Claim 2]

Applicant's admitted prior art in view of Su teach all the limitations of claim 1. Furthermore, Su teaches an further an image data processor (control section 430) between said imaging means (analog video signal in figure 3 shown as an input of 60) and said signal output means (70B) for processing an electrical signal (figure 3) that is obtained from said displacement amount detector (40 and 50) and correcting the distortion of a captured image that is produced according to the amount of displacement of said securing member (col. 3 line 1-col. 5 line 8, figures 1-3).

[Claim 3]

Applicant's admitted prior art in view of Su teach all the limitations of claim 2. Furthermore, Applicant's admitted prior art teaches a materials stage (101) for placing a material that is an object of image capture (Paragraph 6) and an imaging means (camera 103) composed of an imaging element (CCD) and optics as a single unit for picking up an image of said material that is placed on said materials stage and supplying a picture signal as output (Paragraphs 6 and 10). Su teaches a distortion correction processor (80) that corrects distortion with a function for using distortion correction parameters to correct optical distortion of a captured image (col. 4 line 46-col. 5 line 5, figures 1-3) and a storage unit (look up table 90) for storing distortion correction

parameters in correspondence with output values of said displacement amount detector (See table 1-3 at col. 4 lines 11-61); and an arithmetic processor (contained in the control unit 80) for reading from said storage unit distortion correction parameters that correspond to output values of said displacement amount detector (col. 5 lines 48-60) and resetting said distortion correction parameters of said distortion correction processor (col. 4 lines 55-61 teach that the correction values are not fixed or constant at all time and are corrected and obtained by disposing the projector on the horizontal, and then stored in the memory as a look up table).

[Claims 4 and 5]

Applicant's admitted prior art in view of Su teach all the limitations of claims 2 and 3.

Furthermore, Su would have a power switch to turn on or off the apparatus of figure 3 or some mechanism to turn the apparatus on or off which would also turn the distortion correction processing on or off.

[Claims 6-10]

Applicant's admitted prior art in view of Su teach all the limitations of claims 1-5. Furthermore, Applicant's admitted prior art teaches a light source 104 placed adjacent to the camera apparatus 103 (Paragraph 6, figure 1).

[Claims 11-20]

Applicant's admitted prior art in view of Su teach all the limitations of claims 1-10. Furthermore, Applicant's admitted prior art teaches a display for outputting a signal as an image (Paragraph 10).

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K. Aggarwal whose telephone number is (571) 272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571)-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/812,891
Art Unit: 2622

Page 8

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YKA
November 17, 2007

A handwritten signature in black ink, appearing to read 'Lin Ye', with a stylized flourish at the end.

LIN YE
SUPERVISORY PATENT EXAMINER